Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method of balancing thrust demands in a spacecraft, said method comprising the steps of:

(a) controllably generating a number of thrust command signals for application to a plurality of thrusters;

(b) comparing the levels of the generated thrust command signals in relation to a number of predetermined constraints;

(c) identifying which of the thrust demands associated with said plurality of thrusters can operate in accordance with said predetermined constraints and which of the thrust demands associated with said plurality of thrusters can not operate in accordance with said predetermined constraints; and

(d) ~~balancing~~ applying a predetermined combination of null space vectors to balance the various thrust demands such as to permit each of the thrusters to operate in accordance with said predetermined constraints.

Claim 2 (original): A method as claimed in Claim 1, wherein said balancing step comprises shifting a predetermined amount of thrust demand associated with particular thrusters operating in accordance with said predetermined constraints to one or more of the thrusters which do not operate in accordance with said predetermined constraints.

Claim 3 (cancelled).

Claim 4 (previously presented): A method as claimed in Claim 1, wherein said predetermined constraints are selected so that (i) the thrust demand associated with each of said plurality of thrusters is more than a predetermined value and (ii) the total mass flow associated with said plurality of thrusters is constant.

Claim 5 (previously presented): A method as claimed in Claim 1, further comprising the step of modulating a number of forces/torques to provide said number of thrust command signals.

Claim 6 (original): A method as claimed in Claim 5, wherein said balancing step and said modulation step are effected independently.

Claim 7 (previously presented): A method as claimed in Claim 5, wherein said modulation step is effected by means of a non-linear pseudo-inverse modulator.

Claims 8-9 (cancelled).

Claim 10 (currently amended): A spacecraft system for balancing thrust demands comprising:

means for controllably generating a number of thrust command signals for application to a plurality of thrusters;

means for comparing the levels of the generated thrust command signals in relation to a number of predetermined constraints;

means for identifying which of the thrust demands associated with said plurality of thrusters can operate in accordance with said predetermined constraints and which of the thrust demands associated with said plurality of thrusters can not operate in accordance with said predetermined constraints; and

means for ~~balancing~~ applying a predetermined combination of null space vectors to balance the various thrust demands such as to permit each of the thrusters to operate in accordance with said predetermined constraints.

Claims 11-12 (cancelled).

Claim 13 (new): A computer readable medium encoded with a computer program for configuring a data processing system to balance thrust demands in a spacecraft, by performing the following steps:

(e) controllably generating a number of thrust command signals for application to a plurality of thrusters;

(f) comparing the levels of the generated thrust command signals in relation to a number of predetermined constraints;

(g) identifying which of the thrust demands associated with said plurality of thrusters can operate in accordance with said predetermined constraints and which of the thrust demands associated with said plurality of thrusters can not operate in accordance with said predetermined constraints; and

(h) applying a predetermined combination of null space vectors to balance the various thrust demands such as to permit each of the thrusters to operate in accordance with said predetermined constraints.

Claim 14 (new): A spacecraft system comprising:

a plurality of thrusters;

data processing means; and

a computer readable medium encoded with a program for causing said data processor to perform the following steps:

(i) controllably generating a number of thrust command signals for application to a said plurality of thrusters;

(j) comparing the levels of the generated thrust command signals in relation to a number of predetermined constraints;

(k) identifying which of the thrust demands associated with said plurality of thrusters can operate in accordance with said predetermined constraints and which of the thrust demands associated with said plurality of thrusters cannot operate in accordance with said predetermined constraints; and

(l) applying a predetermined combination of null space vectors to balance the various thrust demands such as to permit each of the thrusters to operate in accordance with said predetermined constraints.